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TOWN OF YARMOUTH
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To: Chair Bates and Members of the Yarmouth Town Council
From: Alex Jaegerman, Director of Planning & Development
Subject: Main Street Streetscape Plan Draft Report – Workshop 8-1-19
Date: July 26, 2019

We are pleased to have an opportunity on August 1, 2019 to present the draft report of the Main Street Streetscape Plan and to continue the discussion of the plan recommendations. While the Council has had some previous presentations and discussion around this plan, we will take this opportunity of presenting the first public draft of the written report and to provide additional background, the objectives of the study, and the process we have undertaken to arrive at the plan recommendations. This broader context will assist the Council in evaluating the recommendations. The draft report is a work in progress, and once we have a sense of direction and support of the Town Council, we will finalize the report with appropriate images and illustrations, as well as a more complete phasing plan, cost estimates, and technical appendix to aid in implementation.

When we use the word ***streetscape,*** we are referring to the full street right-of-way including the roadway, crosswalks, esplanades, street trees, lighting, and street and sidewalk furnishings taken as a whole. This project has grown out of the general realization that the condition of the sidewalks along Main Street are in dire need of improvement, and that the streetscape lacks a coherent design intent and has evolved haphazardly. An objective assessment reveals a fully amortized sidewalk infrastructure that has been patched and repaired, and generally does not meet current ADA standards, and does not provide the support it should for a vibrant village center. Main Street is the lifeblood of Yarmouth and this critical ¾ mile stretch in the heart of the village should reflect and enhance Yarmouth's Town character.

This plan was motivated by that broad view, plus the fact that investments are being made continuously in the streetscape infrastructure, such as the sidewalk frontages of development projects (Brickyard Hollow and the Shepley-Weld townhomes) and the sidewalk replacement planned for the large Until gas line patch on the south side from West Elm to Center Street. 317 Community Music Center has been calling for an upgrade to the crossing between the Sacred Heart Church parking lot and Mill Street. Lacking a coherent design plan, incremental improvements will not achieve the desired outcome of a streetscape condition that is attractive, safe, functional and feeds the spirit and economy of the Town. There has been a sense of urgency to get this plan done to better inform planned improvements and make sure that our streetscape evolves in the direction we want it to.

South Side Vic. Town Hall – 6’ Sidewalk

This plan presents a once in a generation opportunity to improve the appearance, function and safety of Yarmouth’s Main Street. Main Street is more than a traffic artery. It is the backbone of the community with its open spaces, residences and businesses, incorporating iconic images of historic Yarmouth and activities for all ages and walks of life in the community. It is where residents and visitors walk, bike, jog, shop, meet and celebrate their community. This plan aims to enhance the quality of the user experience and the image of the Town.

At the center of practice for main streets is the notion of Complete Streets, which was adopted as a formal Town policy in 2015. Complete streets provide a balance of user experience for all modes – vehicles, pedestrians, transit, walkers, etc. and all abilities and experience levels. Providing safe and ample sidewalks meeting ADA requirements and allowing Yarmouth’s youth unfettered access to the schools and shops around town is an important part of the quality of life here. Parents can let their children out and about, to enjoy free range of movement through town by bike or foot. Not every community can claim that degree of comfort, convenience, safety, and freedom. Yarmouth is a modern community that has retained some of the best features of an old-fashioned small town. This plan is designed to continue and promote that quality and character, the sense of place that is Yarmouth.

South Side Vic Hancock Lumber – 7’

Project Objectives:
The following study objectives were articulated in the request for proposals at the outset of this plan and have guided the efforts of the consulting team, staff, and advisory committee:

A. Provide a distinctive and cohesive design framework for the Village Center Main Street corridor.
B. Improve the visual and physical quality of the downtown Main Street environment.
C. Enhance Main Street according to established Americans with Disabilities Act (ADA) standards and Complete Street policies and principles.
D. Ensure improvements are durable and designed for ease, economy, and efficiency of maintenance.
E. Improve the attractiveness, comfort, safety, and convenience of the pedestrian realm through enhanced sidewalk conditions and materials, improved lighting, provision of landscape and street trees, and appropriately located and detailed crosswalks.
F. Improve the economic vitality of downtown Main Street.
G. Improve the environmental impacts of Main Street through such green infrastructure features as street trees and rain gardens or other appropriate measures.
H. Incorporate recommendations from related plans and studies (esp. the Main Street Parking Study).
I. Consider appropriate traffic calming or speed mitigation design features to balance local vehicular, pedestrian and bicycle traffic with commuter through-traffic.

The draft report (Attachment 1) includes the following sections: Introduction; Design Team; Traffic Considerations (speed study, volumes, crash history); Study Objectives; Community Input; Sidewalks

(width, material, obstacles); Crosswalks (condition, curb extensions, raised crosswalks, flashing beacons); Esplanades; Street Trees; Lighting; Overhead Utility Considerations; Details; Discussion of Recommended Treatment of 14 Segments (Latchstring Park, Elm Street, Center Street, Mill Street, South Street, Railroad Square-Yarmouth Crossing, Walkers Path, Cleaves-School Streets, Library-Town Hall, York Street, NYA, Bridge Street, Portland Street, and Marina Road). The final report will be fully illustrated. This draft is not.

Details are in progress, as is the section on cost and phasing. We have preliminary cost estimates from the consultant which are attached and are discussed further below. It should be noted that this plan does not provide detailed construction documents ready for bid. Each phase will require final survey and engineering. We did specify, however, that typical details be provided so that as projects come forward there is a clear indication of the planned improvements and general specifications for construction. Detailed drainage, grading and related survey information will be required for construction. This plan provides a clear blueprint for future improvements of those elements that will upgrade and unify the streetscape to achieve the quality outcome desired.

Council Questions and Concerns

In prior Workshops and Operations Committee meetings, certain Town Councilors have raised questions and concerns about the recommendations. These issues have been addressed in the draft report to some extent.

Councilor Shannon was concerned that the recommended 8' sidewalk width might be excessive, and that the choice of material might be of a higher quality and character. Regarding width, we have modified the recommendation somewhat in recognition that there are varying conditions along the study corridor. While we continue to recommend 8' sidewalk and 3' esplanade where appropriate, where the character and context would be better suited to a 6' sidewalk, the width can be adjusted accordingly. Regarding materials, concrete is a durable, attractive and cost-effective material for the basic sidewalk material. We have provided an accent feature of granite pavers in some esplanades to step up the palette to a richer look and feel. Concrete is the indigenous material in place, while we have been using granite pavers to mark special locations of high civic value, such as the Merrill Library entrance, Town Hall entrance, and the new plazas under the Route 1 bridge over Main Street. We believer that the combination of concrete and granite pavers provides a sustainable surface material selection. The amount of granite can be increased selectively as resources allow. Other materials were considered, such as brick or colored/textured concrete, but the Advisory Committee, staff and consultants agree that the recommended materials are the right solution for Yarmouth's sidewalks.

Councilor Casey wrote to say that she is troubled by the curb extensions. The report acknowledges her concerns but continues to make the case for these important elements in contributing to the balance between vehicles and pedestrians required of a complete streets approach. The recommended curb extensions are not as large as some that have been built in Portland and elsewhere. Extending the curb 6' prevents cars from parking too close to intersections, reduces the crossing distance for pedestrians, and improves the visibility of pedestrians to motorists. It is becoming the standard of practice to provide curb extensions at significant crosswalk locations. These extensions also provide room for pedestrian lights, trees, and grass to offset the hardscape elements.

Councilor Shannon also questioned the choice of pedestrian lighting, as to its quality and character. The study team studied the universe of lighting catalogues and devoted a meeting to review and selection. The luminaire chosen is the Holophane Memphis Series. Holophane is a lighting company of over 100 years operation in Ohio. My experience with the company dates to selection of lights for downtown Portland, including a tour of the factory and the development of a luminaire not previously available for the Portland project. The company uses traditional metal

and glass casting methods and maintains a storehouse of molds for all products. The glass refractors are engineered to achieve desired light distribution. The materials used are solid and long lasting, the product of an artisanal industrial process. The catalogue cut for this is provided as Attachment 3. This is the same light that has been selected for the upgrades to Village Green Park.

POLE ATTRIBUTES:

Description The lighting post shall be all aluminum, one-piece construction, with a classic tapered and fluted base design.

Materials The base and fluted tapered cast shaft shall be heavy wall, cast aluminum produced from certified ASTM 356.1 Ingot per ASTM B-179-95a or ASTM B26-95. The straight shaft shall be extruded from aluminum, ASTM 6061 alloy, heat treated to a T6 temper. The tapered shaft shall be extruded from aluminum ASTM 6063 alloy, spun to a tapered shape, then heat treated to a T6 temper. All hardware shall be tamper resistant stainless steel.

Construction The shaft shall be double welded to the base casting and shipped as one piece for maximum structural integrity. The shaft shall be welded inside the base casting at the top of the access door, and externally where the shaft exits the base. All welding shall be per ANSI/AWS.

Dimensions The post shall be X'-XX" in height with a 12" or 16" diameter base. At the top of the post, an integral tenon with a transitional donut shall be provided for luminaire mounting.

Installation The post has an option to have four L-Type hot dip galvanized anchor bolts shipped with it. A door shall be provided in the base for anchorage and wiring access. A grounding screw shall be provided inside the base opposite the door.

CROSSARM ATTRIBUTES:

Lisbon crossams are made from durable cast aluminum that will provide grace and elegance to the GlasWerks™ II luminaires or any pendent mounting luminaire.**Requires P11 Tenon**
Requires P11 Tenon

FIXTURE ATTRIBUTES:

The Memphis® Pedestrian luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of this century. Designed for light control and ease of installation and maintenance, the Memphis pedestrian has a precision optical system for true street lighting performance.

Features for the Pedestrian Tear Drop Series:

- Classic, elegant appearance
- Pedestrian-scale
- Complements original Tear Drop Series
- Permanent, durable prismatic glass
- Ease of maintenance/installation

Finish/Material The luminaire is finished with polyester powder paint to insure maximum durability. All castings utilize alloy #356 copper free aluminum for maximum corrosion resistance and all exposed hardware is stainless steel**Configure Entire Pole Package Assmembly For Pole and Arm Combinations**

Cost and Phasing

The costs have been preliminarily estimated by Ransom Engineers for this project, for the project as a whole and for various segments that could be the basis of a phased implementation plan. These are still preliminary estimates and are subject to refinement in the final draft following review by Town staff and pricing of some elements not yet in the estimates. The preliminary cost estimates are as follows:

Phase I: Elm Street to Center Street: $657,000
Phase 1A: Mill Street Crossing: $192,000
Center St. to RR Square: $775,000
RR Square to School St. $488,000
School St. to Rt. 1: $539,000
Rt. 1 to Bridge St.: $624,000
Bridge St. to Portland St.: $674,000
Portland St. to Marina: $407,000

Total Project Cost: $4.16 million

The first phase is recommended to include the westerly segment from Elm Street to Center Street, both sides, plus the crosswalk from Sacred Heart to Mill Street.

Attachments:

1. Draft Streetscape Plan (Narrative)
2. Ransom Cost Estimates
3. Lighting Catalogue Cut

Note: The plan drawing is the 40-Scale Roll Plan that is available on-line:

https://yarmouth.me.us/streetscape

July 24, 2019

TO: Yarmouth Town Council
FR: Terry DeWan / TJD&A

RE: DRAFT: YARMOUTH MAIN STREET STREETSCAPE PLAN

PROJECT BACKGROUND AND OVERVIEW

INTRODUCTION

The Town of Yarmouth has commissioned a team of landscape architectural and engineering consultants to develop a streetscape plan for Main Street in the village center area extending from Marina Road to Latchstring Park. This ¾ mile corridor exemplifies the mixed-use core of the village, renowned for its historic character and its compact, walkable district composed of residences, commercial uses, North Yarmouth Academy, and important civic buildings including Town Hall and the Merrill Memorial Library. The intent of this sidewalk and streetscape plan is to create a detailed treatment plan for this corridor to improve its function, safety, and attractiveness for all users and all modes of mobility.

The 2010 Comprehensive Plan promotes the Village Center in the study area as a vibrant and walkable mixed-use center with a healthy balance of residential and commercial uses. Accommodation of more housing, restaurants, stores, offices and related activity requires a peaceful coexistence between the through-commuting traffic and local vehicle, pedestrian and bicycle traffic. The streetscape plan provides design direction and site-specific recommendations and plans to improve upon the safety and convenience of local users enjoying access to the amenities of the Village Center while accommodating the regional traffic flows.

DESIGN TEAM

Terrence J DeWan & Associates – Lead Design / Landscape Architects
Ransom Consulting, Inc. – Civil Engineers
T.Y. Lin International – Traffic and Transportation Engineer
Sarah Witte Landscape Architect
Town of Yarmouth and the Main Street Improvement Committee

TRAFFIC CONSIDERATIONS

Vehicular Speeds. The Town of Yarmouth collected speed data in December 2018 and January 2019 at three locations along Main Street as summarized below. In general speeds are not significantly above the regulatory speed limit, but there were several vehicles that exceeded the posted speed limit.

- Main Street Westbound at Railroad Park
    - Average Speed – 23 MPH
    - 85th% Speed – 28 MPH
    - Posted Speed Limit – 25 MPH
- Main Street Eastbound at Railroad Park

  - Average Speed – 21 MPH
  - 85th% Speed – 27 MPH
  - Posted Speed Limit – 25 MPH
- Main Street Westbound at NYA
  - Average Speed – 22 MPH
  - 85th% Speed – 28 MPH
  - Posted Speed Limit – 25 MPH

Traffic Volumes. MaineDOT reports that Average Annual Daily Traffic Volumes (AADT) on Main Street, SR 115, ranges from under 4,000 vehicles (York to Bridge) to over 10,000 vehicles (South to Cleaves). As a State Route serving surrounding communities of Gray, New Gloucester, Pownal and North Yarmouth, Main Street is a funnel for commuter traffic heading to I-295. Intersection turning movement counts were collected at Main Street intersections with West Elm Street/East Elm Street, School Street/Cleaves Street, Portland Street and Marina Road. The counts indicated the following:

- The peak hours at the West Elm/East Elm intersection occur from 7:30 to 8:30AM and 5:00 to 6:00PM. The total entering AM peak hour volume was 1,088 vehicles and the PM peak hour volume was 1,199 vehicles.
- The peak hours at the School Street/Cleaves Street intersection occur from 7:30 to 8:30AM and 4:00 to 5:00PM. The total entering AM peak hour volume was 1,022 vehicles and the PM peak hour volume was 1,222 vehicles.
- The peak hour at the Portland Street intersection occurred from 4:00 to 5:00PM (only a PM count was performed. The total entering PM peak hour volume was 650 vehicles.
- The peak hour at the Marina Road intersection occurred from 4:30 to 5:30PM (only a PM peak hour count was performed. The total entering PM peak hour volume was 496 vehicles.

Crash Data. Crash data was obtained from MaineDOT for Main Street for the 2015 to 2017 three-year period. There were no High Crash Locations per MaineDOT criteria. No safety deficiencies were identified. Total crashes for major intersections are noted below:

- West Elm/East Elm – 2 crashes
- School Street/Cleaves Street – 9 crashes
- Portland Street – no crashes
- Marina Road – 2 crashes (a detailed review of police reports was conducted at this location given the unique configuration and geometry. One crash was related to eastbound Main Street left turns and Marina Road westbound movements).

STUDY OBJECTIVES

A. Provide a distinctive and cohesive design framework for the Village Center Main Street corridor.
B. Improve the visual and physical quality of the downtown Main Street environment.
C. Enhance Main Street according to established Americans with Disabilities Act (ADA) standards and Complete Street policies and principles.
D. Ensure improvements are durable and designed for ease, economy, and efficiency of maintenance.

E. Improve the attractiveness, comfort, safety, and convenience of the pedestrian realm through enhanced sidewalk conditions and materials, improved lighting, provision of landscape and street trees, and appropriately located and detailed crosswalks.
F. Improve the economic vitality of downtown Main Street.
G. Improve the environmental impacts of Main Street through such green infrastructure features as street trees and rain gardens or other appropriate measures.
H. Incorporate recommendations from related plans and studies (esp. the Main Street Parking Study).
I. Consider appropriate traffic calming or speed mitigation design features to balance local vehicular, pedestrian and bicycle traffic with commuter through-traffic.

COMMUNITY INPUT

The Town of Yarmouth established a Streetscape Advisory to assist the staff and consultants in the process. The following stakeholders comprise the advisory committee:

Chamber of Commerce – Adrienne Nardi
Economic Development Advisory Board – Anita Demetropolous
Local business owner(s) – Lynne Hynes
Village Improvement Society – Linda Grant & Elizabeth Marin
Yarmouth History Center – Katherine Worthing
Bike - Ped Advisory Committee – Ben Mather and Susan Prescott
Aging in Place Committee – Denis Fitzgibbons
At-Large Citizen – Lynne Seeley
North Yarmouth Academy – Garrett Browne
Yarmouth Arts Alliance – Linda Horstmann
317 Main Community Music Center – John Williams

The project was managed and assisted by the following Town staff:

Alex Jaegerman, Director of Planning & Development, Project Manager
Erik Street, Director of Public Works
Scott LaFlamme, Director of Economic Development
Steve Johnson, Town Engineer
Karyn MacNeil, Director of Community Services
Andrew Gabrielson, Town Tree Warden

The project began with a Kick-Off Meeting and Site Walk with the Streetscape Advisory Committee on October 4, 2018. Two public input forums were held at the Yarmouth High School, which were each advertised with a Town-wide postcard mailing. The first public forum was on November 27, 2018. The Streetscape Advisory Committee met on January 15, 2019, and the second public forum was held to present the plan recommendations on February 12, 2019. The plan was presented to the Economic Development Advisory Committee on March 5, 2019, a Town Council Workshop on May 5, 2019 and a Council Operations

Committee meeting on May 30, 2019. The plan was discussed by the Bike-Ped Committee on June 19, 2019.

EXISTING CONDITIONS / DESIGN APPROACH / RECOMMENDATIONS

SIDEWALKS

Existing Conditions

A major objective of this study is to unify Yarmouth's Main Street, with a consistent treatment of the street, sidewalks, lighting, and pedestrian amenities. There has not been a comprehensive evaluation of the streetscape since 1998, and the current condition of the sidewalks speaks to the need for improvements. There are several areas along Main Street where expanded pavement area on the sidewalk would be conducive to enhanced activity, gathering, and outdoor dining.

Considerations

Widths. Existing sidewalks vary in width from over 12 feet in front of some of the commercial establishments, down to 4 feet in some of the residential sections. Input from the Advisory Committee and comments received at public meetings supported a widened sidewalk throughout to support the range of uses: walkers, joggers, wheelchair users, children walking to school, shoppers, bicyclists (especially younger riders and families), etc. The existing Main Street right-of-way is wide enough to accommodate additional width throughout most of the corridor.

Sidewalk widths should be a function of anticipated uses. The Federal Highway Administration offers the following:

> *Sidewalks require a minimum width of 5.0 feet if set back from the curb or 6.0 feet if at the curb face. Any width less than this does not meet the minimum requirements for people with disabilities. Walking is a social activity. For any two people to walk together, 5.0 feet of space is the bare minimum. In some areas, such as near schools, sporting complexes, some parks, and many shopping districts, the minimum width for a sidewalk is 8.0 feet*. [1]

Since the Advisory Committee meetings, concerns have been expressed that 8 feet might be excessive in some locations. Where the adjacent context is consistently residential and where there are character defining features that would be disturbed by a wider sidewalk, such as mature trees, fencing, landscape elements, etc., the sidewalk width can be reduced to a minimum of 6 feet in width.

Materials. There are many different sidewalk materials found along Main Street, with concrete and asphalt most commonly used. Where the recent gas lines were installed at the western end of Main Street, asphalt patches were used where the concrete was removed, creating an

[1] Federal Highway Administration Course on Bicycle and Pedestrian Transportation. https://safety.fhwa.dot.gov/ped_bike/univcourse/pdf/swless13.pdf

irregular, temporary effect. Much of the concrete has cracked and settled over the years, creating tripping hazards and a generally unkempt appearance.

The Advisory Committee examined a number of alternative materials – including clay brick, concrete pavers, asphalt, stamped/colored concrete, granite – all of which are used in various locations in the northeastern United States. The committee evaluated each in terms of several factors, i.e., initial costs, life cycle costs, appearance, authenticity, maintainability, traditional usage in Yarmouth, and slip potential when wet or in frost conditions, before making a recommendation. The streetscape plan has maintained a simple palette of materials, in keeping with Yarmouth's tradition.

Obstacles An obstacle is defined as anything that falls within the pedestrian travel way whether at the ground surface or projecting into the travel way below a 7'-8' high limit. On Main Street obstacles currently take the form of utility poles, signs, pavement changes, grade changes, landscaping, trees, railroad crossings, railroad signals, and other elements of the streetscape. To a person with limited mobility, even small changes in sidewalk grades or pavement materials can present a real challenge and result in hazardous conditions.

The conceptual sidewalk design addresses these issues to the maximum extent possible. The final construction documents should pay particular attention to assure that any obstacles are relocated, trimmed back, or removed altogether. Relocation of utility poles will require coordination and consent of the utility companies serving Yarmouth (i.e., CMP and Fair Point).

Recommendations
A goal of the Master Plan is to assure consistency with all material throughout the project area.

- **Widths**. Future sidewalks should have a minimum width of 8 feet where they serve commercial uses along Main Street. In areas that are primarily residential and where significant improvements or mature trees limit available width, consideration should be giving to decreasing the width to 6 feet.

- **Sidewalk Materials**. New sidewalks should be natural concrete as the primary material. This was selected based upon its initial cost, maintenance requirements, non-skid surface, and traditional use in Yarmouth. Concrete can be scored and/or treated to add texture and visual interest, which would also reduce the scale of the sidewalks. In certain areas we are proposing granite pavers in the esplanade area (described further below), which will complement the concrete sidewalk with a richer material palette in select locations where a higher treatment level is desirable.

CROSSWALKS

Existing Conditions
Most of the existing crosswalks on Main Street are in need of improvement and repair. Many do not meet current ADA standards for cross slopes, especially at driveway intersections and street corners.

Considerations

Current practice in streetscape design is to make crosswalks as short and as highly visible as possible. This can be accomplished in a number of ways, primarily through the use of curb extensions and highly visible contrasting crosswalk color. The town has experimented with a number of crosswalk treatments in the past (e.g., stamped asphalt); none seem to be as workable as high quality pavement marking paint.

Recommendations

Crosswalk Surface. Because Main Street is a state highway, Yarmouth is required to use white striping to mark crosswalks. Alternate material could be used, such as concrete or unit pavers (concrete or granite). If one of these materials is considered, it should be integral with the pavement for a certain depth so that it will not be worn away during the winter by sand and tire friction. Alternate materials come at a higher cost so the Town will need to determine the feasibility of alternate paving based on life-cycle costs, construction costs, and maintenance budgets.

Curb Extensions. Curb extensions (also known as bump-outs or neck-downs) are places where the curb line is moved 6 feet toward the centerline of the road to create a safer and more protected pedestrian environment, while not interfering with vehicular or bicycle movement. Curb extensions visually narrow the width of the road, causing motorists to slow down. Curb extensions make vehicles more visible to pedestrians and make pedestrians more visible to motorists. These are also areas where additional landscaping (grass, perennials, trees, benches, bike racks, or other street furniture) or rain gardens can be installed to increase the overall attractiveness and sustainability of Main Street. Where curb extensions are proposed on both sides of the street, crossing distances (and the time that pedestrians spend in the roadway) will be reduced by approximately 30% (generally from 40 feet down to 28 feet).

Concern has been expressed that these curb extensions could be obtrusive to drivers and are non-traditional in appearance. The recommended design is relatively subtle, extending only 6 feet from the existing curb line (which is two feet less than the width of the adjacent parking stall). One of the biggest advantages of curb extensions is the important safety benefit they provide to pedestrians, as described above. In many communities this is the standard of practice in Complete Street design where the objective is to balance safety and mobility for both motorists and pedestrians. When they are properly detailed, they offer considerable improvement to accessibility while providing generous areas for tree planting, potential rain gardens, and character lighting to enhance pedestrian comfort and safety.

Raised Crosswalks. Raised crosswalks provide additional attention to pedestrian crossings by elevating the walking surface close to or at the same grade as the adjacent sidewalks. A ramp of 8’ to 10’ in width provides a smooth transition for cars, trucks, and snowplows to ride over the crosswalk. The crosswalk ramps and crossings should be marked with traffic paint to indicate their presence. The only raised crosswalk included in the Main Street Plan is at the Walker’s Path leading to Rowe School. This crosswalk is very active and located on a slight hill, which can lead to increased speed and visibility concerns.

Rectangular Rapid Flashing Beacons (RRFB). RRFBs are pedestrian activated flashing lights that alert motorists to the presence of pedestrians in the crosswalks (one was recently installed at

the NYA crosswalk). The Plan recommends an RRFB at the Walker's Path leading to the Rowe School trail, based upon input from public meetings, the Main Street Improvement Committee, and the design team's traffic engineer. We have also specified one at the Mill Street crosswalk between Sacred Heart Church and 317 and the Masons/Community Center.

ESPLANADES

Existing Conditions

An esplanade refers to the area between the curb and the sidewalk. Most of the existing sidewalks are separated from the street by grassy esplanades that vary in width from 1.5 feet to over 8 feet. Esplanades are often referred to as utility strips, where street trees, street lights, fire hydrants, street signs, and other functional elements of the streetscape are located.

Considerations

While the majority of the esplanades are relatively level, there are instances where the grade is relatively steep, which makes it difficult to maintain grass or to use for occasional walking/biking. The goal of the plan is to develop a consistent esplanade treatment that will help unify Main Street.

Recommendations

- **Esplanades: Grass**. All esplanades should have a three-foot width, with grass being the preferred surface treatment.

- **Esplanades: Paved**. In certain Commercial / Civic Hub locations, the esplanades should be granite pavers that will provide a wider sidewalk area while maintaining the visual presence and consistency of the esplanade. These granite "pattern pavers" provide a safe, durable, and attractive element that has been used in other locations around Yarmouth, including Town Hall, the entrance to the Library, and most recently the plaza spaces under the Route 1 bridge over Main Street. This touch of elegance provides an appropriately high quality of fit and finish to the sidewalks, used sparingly as proposed.

- **Esplanades: Granite Setts.** In areas where grades or foot-traffic patterns may make grass esplanades unworkable or where the grass has failed to thrive, the Town should consider the use of granite setts (small square granite cobblestones) to harden the esplanade area.

- **Trees in Esplanades**. See recommendations for Trees, below.

STREET TREES

Existing Conditions

Yarmouth is justifiably proud of its arboricultural heritage. For the past 40 years the Town has been recognized as one of 20 TREE CITY USA communities in Maine. The Arbor Day Foundation, in cooperation with the USDA Forest Service and the National Association of State Foresters, recognizes towns and cities across America that meet the standards of the TREE CITY USA

program. The TREE CITY USA program is designed to recognize those communities that effectively manage their public resources, and to encourage the implementation of community tree management based on four TREE CITY USA standards. These four standards provide structure for a community forestry program, require that program to demonstrate success based on the judgment of the state forester's office, and provide for an awareness and appreciation of trees among the residents of the community. The four qualifying criteria for TREE CITY USA are:

- a tree board or department;
- a community tree ordinance;
- a community forestry program with an annual budget of at least $2 per capita; and
- an Arbor Day observance and proclamation.[2]

Considerations

There are several locations on Main Street where healthy trees encroach on the sidewalk. As new sidewalks are planned, each situation should be evaluated on a case-by-case basis to determine how to proceed without major root system damage. This should involve both the tree warden (to assess the tree's current health and likelihood of long-term survival) and the town engineer (to evaluate sidewalk condition based on existing and proposed grades, root obstruction, and clear passage from a safety and accessibility perspective).

As noted during the committee and public meetings, there are many healthy ash trees currently on Main Street that could be impacted by the Emerald Ash Borer. The borer is an exotic beetle that was first discovered in Michigan in the summer of 2002. It was first detected in Maine in June 2018 with an infestation in northern Aroostook County (along the border with Quebec), followed by detection in western York County (along the New Hampshire border) last fall. The larvae (immature stage of the beetle) feed on the inner bark of ash trees, which disrupts the tree's ability to move water and nutrients. Since its first detection, the beetle has spread from Michigan to 35 states and five Canadian provinces. It has managed to kill 100 percent of ash trees greater than 2 inches in diameter in southeast Michigan, and research predicts that less than 1 percent of ash trees nationwide will survive the infestation. The pest attacks trees large and small, healthy and stressed, and on all kinds of sites.[3] Planning for replacement of existing ash trees on Main Street should happen sooner vs later to maintain a healthy mix of mature and new trees.

In some cases there may be a conflict with the location of existing trees. Where this occurs, the Town should discuss the health and potential longevity of the existing tree (especially if it is an ash specie) and if a street tree should be placed at that time or the site be prepared for one in the future.

[2] Tree City, USA,Project Canopy. https://www.maine.gov/dacf/mfs/policy_management/project_canopy/programs/tree_city_usa.html

[3] http://www.mofga.org/Publications/The-Maine-Organic-Farmer-Gardener/Spring-2019/10-Q-As-About-Emerald-Ash-Borer

The Site Plan indicates proposed trees as either large or small circles. The small circles represent ornamental trees that would be suitable in locations under existing overhead utility lines. The larger circles represent shade trees that could achieve their full height without interfering with utilities or nearby buildings. If utilities on Main Street are relocated or installed underground, larger street trees should be substituted in place of the smaller species.

Yarmouth has a remarkable diversity of tree species along and near Main Street, including an Amur Cork Tree, Horse Chestnut, ancient oaks, and surviving American Elms. Plantings in the future should recognize this tradition and expand upon the palette of trees to further enrich the natural landscape of the street.

Recommendations

- **Tree Spacing**. New trees should be spaced approximately 44' on center to fall between parallel parking spaces and avoid interfering with car door openings.
- **Tree Grates in Paved Esplanades**. Where trees are proposed for paved esplanades, they should be installed with 3' x 6' natural weathered iron tree grates.
- **Raised Tree Beds**. An acceptable alternative to tree grates is the use of granite curbing to create raised planting beds. This solution may be less expensive than tree grates and may reduce the amount of damaging road salt entering the root zone.
- **Trees in Grass Esplanades**. Tree grates would not be necessary in grassed areas.
- **Structural soils** should be used below the sidewalks to allow tree roots to spread beyond the limitations of the tree pit. Structural soils are a mix of organic growing medium and crushed stone that, when compacted, will structurally support the sidewalk while providing gaps and air pockets for root growth and extension. (See detail.)[4]
- **Recommended Tree Species**. The Appendix contains a list of recommended tree species for Main Street that is based on hardiness to Maine winter temperatures, tolerance for urban conditions, maintenance requirements, form, and mature height. This should not prohibit the consideration of other species as availability may change. Final selection should be coordinated with the Yarmouth Tree Warden.
- **Tree Root Encroachments**. This may involve terminating the concrete sidewalk at a control joint closest to the tree where an accessible slope could be achieved. Existing sidewalks should be removed with air spades and hand tools to limit the impact to the root system. Any backfilling should be done with crushed stone or structural soil and a concrete unit paver should be used to fill the gap between the concrete sections. The unit pavers should blend with the new sidewalk and allow for maintenance and resetting as needed.

LIGHTING

Supplemental pedestrian lighting is recommended on both sides of the crosswalks, to be installed in conjunction with curb extensions. The recommended fixture is Holophane Memphis LED Pedestrian Series MSPL2, which will introduce additional character to Main Street and provide enough light to improve safety without becoming a nuisance or contributing to light pollution. LED (Light Emitting Diode) fixtures are the current standard for municipal street lighting due to their energy efficiency, extended life, and color rendition. Lighting poles and

[4] Bassuk, Nina et. al.; Using CU-Structural Soil in the Urban Environment; Urban Horticultural Institute, Cornell University; Ithaca, NY; 2005

fixtures should be black to enhance the landscape without dominating the space. The fixture should be 12' ± above the ground, which is a typical mounting height for pedestrian lighting. Fixtures should be full cutoff to focus the light on the sidewalk and crosswalk, avoiding light trespass on private abutting properties.

OVERHEAD UTILITIES

There was a strong desire expressed at the public meetings for the Town to consider eliminating overhead utilities on Main Street; residents felt that the overhead utilities detracted from the beauty and charm of the street. While elimination of overhead utilities typically involves installation of underground conduits and other infrastructure, a resident also suggested relocating the utilities from Main Street to behind the buildings, as had been done a number of years ago in portions of downtown Bar Harbor.

While exploring these options is beyond the scope of this master planning effort, Ransom has provided a proposal to conduct a feasibility study and alternatives analysis that would evaluate both alternatives and produce conceptual layouts and estimated costs for each. Without conducting such an analysis, it is difficult to provide an opinion of probable cost. However, there are several factors that suggest burying or relocating the overhead utilities on Main Street could be particularly cost-prohibitive. Given the relatively dense development along the corridor, each building represents a potentially unique challenge and an individual property owner to coordinate with. While providing new utility services from behind the buildings may be more cost effective, there may not be available rights of way; utility easements over private property would be needed. In either case, removing the overhead utilities would also require the town to install new lighting along the corridor (including poles, foundations, fixtures, and underground conduit) because the utility poles would no longer be available for cobra head fixtures.

Ultimately, the Town will have to decide whether it is worthwhile to pursue the expense studying and estimating costs for these options, balancing the study cost with other corridor needs, including safety and accessibility improvements.

DETAILS (*From Ransom)*

Typical sidewalk section
Typical curb extension
Typical crosswalk
Typical accessible ramp
Typical light detail
Typical tree pit detail
Typical curb detail
Typical raised crosswalk detail
Typical driveway apron
Raised intersection detail
Railroad crossing detail
ADA parallel parking detail
Roadside rain garden
Cobble shoulder
Bench

Bike rack
Granite pattern paver esplanade
Tree grate (catalogue cut)
Structural soil detail
Curbed tree well

MAIN STREET SEGMENTS

Latchstring Park

Latchstring Park, at the southwest corner of Main and Elm Streets, is one of Yarmouth's most visible public spaces. The name refers to the granite monument within the park that is etched with the names of the recipients of the town's annual Latchstring Award, which is given to residents who have contributed notable service to the community. The following improvements are recommended to increase its functionality, attractiveness, and ease of maintenance.

- Create a paved and shaded plaza for people to comfortably gather and use.
- Provide pedestrian routes through the park to link surrounding neighborhoods to the Elm Street intersection.
- Landscape features should consider a wall designed to complement the low stone walls on the opposite corner provide additional seating and more cohesion to the intersection.
- Relocate the Latchstring Monument to a more central and visually accessible site within the park.
- Provide bike racks, seasonal landscaping, and other features to unify and beautify the park.
- Re-evaluate the need for and/or the design of the parking at the south end of the park, which allows cars to avoid the traffic light at Main Street.

Elm Street

Elm Street marks the gateway into Yarmouth Village and is one of the town's busiest intersections, especially in peak hours when school and commuter traffic converge. Recommendations alert motorists that they are entering an area with more traffic, more pedestrian activity, and generally slower speeds. The following improvements are recommended.

- Install curb extensions at both (northeast and southeast) corners to create shorter crosswalks on both Main Street and Elm Street.
- Taper curb extensions to maintain the existing parking beyond the crosswalks.
- Maintain the current "all way stop" for traffic signal when the pedestrian crossing button is activated.
- Continue to allow diagonal pedestrian movement through intersection during "all way stop" phase, but without markings or curb ramps.
- Confirm turning radii for buses and large trucks.

Center Street

Center Street is a split intersection, separated by a triangular landscape island. There is currently not adequate space on the north side of Main Street for a parking space due to the existing fire hydrant and proximity to driveway openings. The following improvements are recommended.

- Move the crosswalk to the island where Center Street splits.
- Install curb extensions on both sides of Main Street to shorten the crossing distance.
- Center Street Island Park and the crosswalk landing would benefit from seating, public art, or other enhancements.
- Evaluate potential for a rain garden on the north side of Main Street east of the crosswalk.

Mill Street

The Yarmouth Farmer's Market, musical events at 317 Main Street, and Sacred Heart Church activities have increased the need for a safe pedestrian crossing at this section of Main Street.

Mill Street is also a key pedestrian access location to the Royal River Park. The following improvements are recommended.

- Install a new crosswalk between the Sacred Heart Church and 317 Main Street to align with the Mill Street sidewalk.
- Install curb extensions on both sides of Main Street to shorten the crossing distance.
- Evaluate potential for a rain garden on the north side of Main Street west of the crosswalk.
- Consider use of a Rapid Rectangular Flashing Beacon (RRFB) for safer pedestrian crossing, given the locus of activities including Sacred Heart Church and parking, 317 Community Music Center, and the community activities on the Mason's lot.

South Street

South Street and many of the side streets in the Village would benefit from neighborhood sidewalks to keep pedestrians out of the roadway. South Street is especially dangerous for pedestrians when drivers on Main Street turn left into South Street to beat oncoming traffic. The following improvements are recommended.

- Upgrade crosswalk with curb extension on south side of Main Street.
- Narrow the width of Main Street in No Parking zone (north side of street from Mill Street to railroad) and increase the sidewalk width.
- Evaluate sidewalk(s) on South Street to provide a safe alternative to pedestrian use of the roadway.
- Evaluate potential for a rain garden on the south side of Main Street, east of the crosswalk.
- Formalize the two curb cuts at 301 Main (Peachey's Smoothie Café) with 8' sidewalk and granite paver esplanade.

Railroad Square / Yarmouth Crossing.

At this point the plans should be considered a placeholder, pending more defined plans for both the railroad and adjacent properties. A future rail trail and infill development could make this intersection a significant hub along Main Street. The following improvements are recommended.

- Consider trail landing plazas on both sides of Main Street to mark the start of the rail trail.
- Evaluate changes in roadway surface to reinforce its function as a high activity zone.
- Provide safe bike / pedestrian crossing over the tracks if there will be rail with trail.
- Anticipate the removal/relocation of some rail hardware / signaling devices.
- Employ granite pavers in the esplanades on both sides west of the tracks.

Walkers Path

The wooded pathway to Rowe School and Royal River Park generates a considerable amount of pedestrian traffic on Main Street. The following improvements are recommended.

- Install curb extensions on both sides of Main Street to shorten the crossing distance.
- Provide a raised crosswalk that is close to or at the same elevation of the adjacent Main Street sidewalks.
- Install a rectangular rapid flashing beacon (RRFB) to alert motorists to pedestrians (especially children) on the walker's path to Rowe School.
- Evaluate potential for a rain garden on both sides of Main Street west of the crosswalk.

Cleaves Street / School Street / Main Street

The Cleaves and Main Street intersection is a significant gateway into the commercial and institutional core of Yarmouth Village for traffic coming south on Route One. The following improvements are recommended.

- Install curb extensions on both sides of Main Street on the east side of the intersection to shorten the crossing distance between the library and Town Hall.
- Taper curb extensions to the curb line to create new parking on both sides of Main Street from the Cleaves/School Street intersection to the entrances to the library and Town Hall.
- Continue to allow diagonal pedestrian movement through intersection during "all way stop" phase, but without markings or curb ramps.
- Confirm turning radii for buses and large trucks as part of final design.
- Evaluate potential for a rain garden on north side of Main Street west of the crosswalk.

Yarmouth Town Library and Town Hall

The space between the Town Library and Town Hall functions as Yarmouth's Town Green, and is the focus of Memorial Day celebrations, the Yarmouth Clam Festival, and other civic events. The space is dominated by a line of historic oak trees lining the Main Street sidewalk. The following improvements are recommended.

- Install curb extensions on both sides of Main Street at the mid-block crosswalk to shorten the crossing distance between Town Hall and the Library.
- Employ granite pavers in the esplanade on both sides of Main Street, starting at the School/Cleaves Street intersection, to reinforce the civic character of the space between the library and Town Hall.

York Street

York Street has a considerable volume of truck traffic coming off Route One to access Main Street. The intersection also functions as a gateway into the commercial/institutional core of Yarmouth Village for traffic coming north on Route One. The following improvements are recommended.

- Maintain existing curb lines to accommodate trucks turning onto Main Street.
- Install cobble paved areas on each corner to visually reduce the road width at the intersection. This treatment will guide most drivers to stay within the paved roadway, while allowing trucks to drive over the cobble apron for their tracking rear tires.
- The crosswalks should be flush pavement to maintain an accessible surface. The edge of the cobble surface will result in a visually shorter and safer crossing.
- Relocate the crosswalk from Key Bank to the east side of York Street. While the existing crossing at the bank is not close enough to York Street to be considered part of the intersection, it is too close to the intersection to be a considered a safe mid-block crossing. This decision was influenced by the addition of a crosswalk on the east side of the new Route One Bridge and the addition of a new crosswalk connecting the Library and Town Hall on the west side of the bridge.
- Eliminate one on-street parking space on the south side of the intersection. Convert that space to a planted esplanade so exiting northbound vehicles from Route One will be welcomed into town by the Yarmouth directory sign and attractive plantings as they approach the intersection.
- Evaluate potential for a rain garden on both sides of Main Street south of the intersection.
- Explore with the adjacent property owner the feasibility of widening the sidewalk on the west side of York Street with a retaining wall at the street right-of-way line.

North Yarmouth Academy

The traditional pedestrian crossing at NYA has been relocated due to the conversion of campus buildings into residential housing. The following improvement has been recommended.

- Install curb extensions on both sides of Main Street at the new mid-block crosswalk to shorten the crossing distance.
- Install granite pavers in the esplanade, north side, between Vespa Lane and the Shepley-Weld Townhouses driveway entrance.

Bridge Street

A considerable amount of pedestrian traffic is generated by North Yarmouth Academy and First Parish Church activities. Bridge Street is also a main accessway to Royal River Park. The following improvement has been recommended.

- Install curb extensions on both sides of Bridge Street and on the south side of Main Street to shorten the crossing distance and provide better visibility over grassed esplanades.

Portland Street

The Portland Street intersection is another major activity hub on Main Street, with traffic coming into the Village from Route One and pedestrian traffic generated by Rosemont Market, First Parish Church, and the First Universalist Church. Traffic currently only stops on Portland Street. The following improvements have been recommended.

- Create a raised intersection at Main Street and Portland Street, elevating the entire intersection at or near the same elevation of the adjacent sidewalks to make this a special community space. (An initial inquiry to MaineDOT provides guidance that they would allow a raised crosswalk provided snow plowing operations and drainage issues are appropriately addressed.)
- Install an 8’ to 10’ wide ramp leading up to the intersection to provide a smooth transition for vehicles and cyclists on the road.
- Install detectable warning strips (preferred) or bollards to inform pedestrians where to cross and keep people safely out of traffic area. If bollards were necessary, they should be fabricated from split granite.
- Design the raised intersection with an alternate paving material for visibility, such as concrete or concrete with flush granite edging.
- Install a three way stop. While a three-way stop is not currently needed based on traffic counts, the change would likely improve the safety and comfort for both drivers and pedestrians at the intersection. (MaineDOT has indicated that a Traffic Movement Study will be required to evaluate the 3-way stop sign option.)
- MaineDOT would need to agree to these changes. If only one recommendation was allowed, the three way stop would be the preferred (v. the raised intersection).

Marina Road

While the Marina Road intersection does not have many recorded accidents, the design team and committee looked at numerous options and recommended the following improvements to reduce confusion and locate a safe pedestrian crossing.

- Realign the intersection to make the Main Street to Marina Road route the dominant (through) traffic flow.

- Realign Main Street where it enters the intersection and install a stop bar before the private driveway. This will provide better sight distance for westbound Main Street motorists looking for traffic ascending the Marina Road hill.
- Eliminate the left turn lane on Main Street for eastbound traffic. This makes it function like a typical intersection where you wait for the vehicle to turn before proceeding. This will also eliminate the confusion of Marina Road motorists who now have to judge whether a motorist in the turning lane understands they need to yield or stop.
- Use the additional green space west of the intersection as a landscaped gateway into the village.
- Provide a crosswalk west of the intersection with curb extensions on both sides of Main Street.

RANSOM Consulting Engineers and Scientists

Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Summary

Date: February 7, 2019 — By: Thomas Nosal
Project No: 181.06046 — Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	5,694	SY	$ 130	$ 740,165	
Reinforced Concrete Driveway Apron	2,580	SY	$ 150	$ 386,942	
Granite Pavers	718	SY	$ 280	$ 201,144	Includes sidewalk banding and in roadway fro traffic calming
Detectable Warning Field	540	SF	$ 75	$ 40,500	Assumes 5'x2' panel at thirty-two ramps within project area (most corners have two ramps)
New Vertical Granite Curb - Type 1	2,587	LF	$ 60	$ 155,218	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	3,604	LF	$ 32	$ 115,323	
New Tree	100	EA	$ 700	$ 70,000	
Structural Soils		CY	$ 200	$ -	
Tree Grate	26	EA	$ 3,000	$ 78,000	
Plantings	1,400	SF	$ 20	$ 28,000	
Benches	35	EA	$ 2,000	$ 70,000	
Bike Parking	8	?	$ 1,500	$ 12,000	
Trash & Recycling Recepticles	21	EA	$ 1,000	$ 21,000	
Ornamental Street Light	21	EA	$ 9,000	$ 189,000	Includes conduit, foundation, pole, and fixture
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements	2	LS	$ 50,000	$ 100,000	
Rain Gardens	841	SF	$ 150	$ 126,136	
Raised Crosswalk	1	EA	$ 18,000	$ 18,000	Granite paver pedestrian travelway, bituminous approaches
RRFB	0	EA	$ 8,000	$ -	
Concrete Pavers	638	SY	$ 200	$ 127,578	For Portland St intersection
Pedestrian Bollards	25	EA	$ 500	$ 12,500	For Portland St intersection
Accessible Business Entrance	2	EA	$ 8,000	$ 16,000	Rosemont at Portland St. Others?
Accessibility Upgrades at Rail Crossing	1	Allowance	$ 50,000	$ 50,000	
Catch Basin (new or relocated)	14	EA	$ 3,600	$ 50,400	
12" Stormdrain	140	LF	$ 150	$ 21,000	
Mobilization & Traffic Control (20%)		LS		$ 525,781	
Contingency (20%)		LS		$ 630,937	
Final Design (10%)		LS		$ 378,562	
		Subtotal:		**$4,164,186**	

RANSOM Consulting Engineers and Scientists

Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 1 - Elm Street to Center Street

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	1,068	SY	$ 130	$ 138,782	
Reinforced Concrete Driveway Apron	226	SY	$ 150	$ 33,850	
Granite Pavers	168	SY	$ 280	$ 46,978	Includes sidewalk banding
Detectable Warning Field	140	SF	$ 75	$ 10,500	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	388	LF	$ 60	$ 23,274	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	528	LF	$ 32	$ 16,896	
New Tree	8	EA	$ 700	$ 5,600	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	8	EA	$ 3,000	$ 24,000	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	2	EA	$ 1,500	$ 3,000	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements	1	LS	$ 50,000	$ 50,000	Includes conduit only.
Rain Gardens	0	SF	$ 150	$ -	
Raised Crosswalk		EA		$ -	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers		SY	$ 200	$ -	For Portland St intersection
Pedestrian Bollards		EA	$ 500	$ -	For Portland St intersection
Accessible Business Entrances	1	Allowance	$ 8,000	$ 8,000	Rosemont at Portland St. Others?
Accessibility Upgrades at Rail Crossing		Allowance	$ -	$ -	
Catch Basin (new or relocated)	2	EA	$ 3,600	$ 7,200	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 83,016	
Contingency (20%)		LS		$ 99,619	
Final Design (10%)		LS		$ 59,772	
		Subtotal:		**$ 657,487**	

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Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 2 - Center Street to Rail Road Square

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	779	SY	$ 130	$ 101,284	
Reinforced Concrete Driveway Apron	314	SY	$ 150	$ 47,115	
Granite Pavers	389	SY	$ 280	$ 108,781	Includes sidewalk banding
Detectable Warning Field	80	SF	$ 75	$ 6,000	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	465	LF	$ 60	$ 27,884	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	568	LF	$ 32	$ 18,163	
New Tree	18	EA	$ 700	$ 12,600	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	0	EA	$ 3,000	$ -	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	0	EA	$ 1,500	$ -	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements		LS	$ 50,000	$ -	Includes conduit only.
Rain Gardens	420	SF	$ 150	$ 63,068	
Raised Crosswalk		EA		$ -	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers		SY	$ 200	$ -	For Portland St intersection
Pedestrian Bollards	0	EA	$ 500	$ -	For Portland St intersection
Accessible Business Entrances		Allowance	$ 8,000	$ -	Rosemont at Portland St. Others?
ccessibility Upgrades at Rail Crossin	1	Allowance	$ 50,000	$ 50,000	
Catch Basin (new or relocated)	2	EA	$ 3,600	$ 7,200	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 97,819	
Contingency (20%)		LS		$ 117,383	
Final Design (10%)		LS		$ 70,430	
		Subtotal:		**$ 774,727**	

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Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 3 - Rail Road Square to School Street

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	779	SY	$ 130	$ 101,312	
Reinforced Concrete Driveway Apron	465	SY	$ 150	$ 69,735	
Granite Pavers	0	SY	$ 280	$ -	Includes sidewalk banding
Detectable Warning Field	20	SF	$ 75	$ 1,500	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	169	LF	$ 60	$ 10,140	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	731	LF	$ 32	$ 23,383	
New Tree	23	EA	$ 700	$ 16,100	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	4	EA	$ 3,000	$ 12,000	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	1	EA	$ 1,500	$ 1,500	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements		LS	$ 50,000	$ -	Includes conduit only.
Rain Gardens		SF	$ 150	$ -	
Raised Crosswalk	1	EA	$ 18,000	$ 18,000	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers		SY	$ 200	$ -	For Portland St intersection
Pedestrian Bollards		EA	$ 500	$ -	For Portland St intersection
Accessible Business Entrances		Allowance	$ 8,000	$ -	Rosemont at Portland St. Others?
Accessibility Upgrades at Rail Crossing		Allowance	$ -	$ -	
Catch Basin (new or relocated)	2	EA	$ 3,600	$ 7,200	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 61,574	
Contingency (20%)		LS		$ 73,889	
Final Design (10%)		LS		$ 44,333	
		Subtotal:		**$ 487,666**	

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Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 4 - School Street to Route 1 Overpass

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	541	SY	$ 130	$ 70,284	
Reinforced Concrete Driveway Apron	397	SY	$ 150	$ 59,551	
Granite Pavers	0	SY	$ 280	$ -	Includes sidewalk banding
Detectable Warning Field	100	SF	$ 75	$ 7,500	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	257	LF	$ 60	$ 15,423	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	369	LF	$ 32	$ 11,817	
New Tree	4	EA	$ 700	$ 2,800	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	2	EA	$ 3,000	$ 6,000	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	2	EA	$ 1,500	$ 3,000	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements	1	LS	$ 50,000	$ 50,000	Includes conduit only.
Rain Gardens	420	SF	$ 150	$ 63,068	
Raised Crosswalk		EA		$ -	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers	0	SY	$ 200	$ -	For Portland St intersection
Pedestrian Bollards	0	EA	$ 500	$ -	For Portland St intersection
Accessible Business Entrances		Allowance	$ 8,000	$ -	Rosemont at Portland St. Others?
Accessibility Upgrades at Rail Crossing		Allowance	$ -	$ -	
Catch Basin (new or relocated)	1	EA	$ 3,600	$ 3,600	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 68,009	
Contingency (20%)		LS		$ 81,610	
Final Design (10%)		LS		$ 48,966	
		Subtotal:		**$ 538,629**	

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Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 5 -Route 1 Overpass to Bridge Street

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	1,252	SY	$ 130	$ 162,773	
Reinforced Concrete Driveway Apron	418	SY	$ 150	$ 62,677	
Granite Pavers	33	SY	$ 280	$ 9,333	Includes sidewalk banding
Detectable Warning Field	80	SF	$ 75	$ 6,000	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	448	LF	$ 60	$ 26,881	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	715	LF	$ 32	$ 22,895	
New Tree	22	EA	$ 700	$ 15,400	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	10	EA	$ 3,000	$ 30,000	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	0	EA	$ 1,500	$ -	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements		LS	$ 50,000	$ -	Includes conduit only.
Rain Gardens		SF	$ 150	$ -	
Raised Crosswalk		EA		$ -	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers		SY	$ 200	$ -	For Portland St intersection
Pedestrian Bollards	0	EA	$ 500	$ -	For Portland St intersection
Accessible Business Entrances		Allowance	$ 8,000	$ -	Rosemont at Portland St. Others?
ccessibility Upgrades at Rail Crossing		Allowance	$ -	$ -	
Catch Basin (new or relocated)	3	EA	$ 3,600	$ 10,800	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 78,752	
Contingency (20%)		LS		$ 94,502	
Final Design (10%)		LS		$ 56,701	
		Subtotal:		**$ 623,715**	

RANSOM Consulting Engineers and Scientists

Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 6 - Bridge Street to Portland Street

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	613	SY	$ 130	$ 79,669	
Reinforced Concrete Driveway Apron	314	SY	$ 150	$ 47,067	
Granite Pavers	129	SY	$ 280	$ 36,052	Includes sidewalk banding
Detectable Warning Field	100	SF	$ 75	$ 7,500	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	428	LF	$ 60	$ 25,696	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	314	LF	$ 32	$ 10,057	
New Tree	10	EA	$ 700	$ 7,000	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	2	EA	$ 3,000	$ 6,000	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	3	EA	$ 1,500	$ 4,500	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements		LS	$ 50,000	$ -	Includes conduit only.
Rain Gardens		SF	$ 150	$ -	
Raised Crosswalk		EA		$ -	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers	638	SY	$ 200	$ 127,578	For Portland St intersection
Pedestrian Bollards	25	EA	$ 500	$ 12,500	For Portland St intersection
Accessible Business Entrances	1	Allowance	$ 8,000	$ 8,000	Rosemont at Portland St. Others?
ccessibility Upgrades at Rail Crossing		Allowance	$ -	$ -	
Catch Basin (new or relocated)	2	EA	$ 3,600	$ 7,200	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 85,164	
Contingency (20%)		LS		$ 102,196	
Final Design (10%)		LS		$ 61,318	
		Subtotal:		**$ 674,496**	

RANSOM Consulting Engineers and Scientists

Downtown Main Street Sidewalk & Streetscape Plan
Yarmouth, Maine
Opinion of Probable Construction Cost
Preliminary/Concept Design
Phase 7 - Portland Street to Marina Street

Date: April 6, 2019 By: Thomas Nosal
Project No: 181.06046 Checked by: John Mahoney

Item	Quantity	Unit	Unit Price	Cost	Comment
Reinforced Concrete Sidewalk	662	SY	$ 130	$ 86,060	
Reinforced Concrete Driveway Apron	446	SY	$ 150	$ 66,947	
Granite Pavers	0	SY	$ 280	$ -	Includes sidewalk banding
Detectable Warning Field	20	SF	$ 75	$ 1,500	Assumes two 5'x2' panels for each crosswalk
New Vertical Granite Curb - Type 1	432	LF	$ 60	$ 25,920	Assumes most straight curbing within project area to be reset. Assumes all new curbing for curb extensions.
Reset Type I Granite Curb	378	LF	$ 32	$ 12,111	
New Tree	15	EA	$ 700	$ 10,500	
Structural Soils		CY	$ 200	$ -	
urbed Tree Planter with Radius Corne	0	EA	$ 3,000	$ -	
Plantings	200	SF	$ 20	$ 4,000	
Benches	5	EA	$ 2,000	$ 10,000	
Bike Parking	0	EA	$ 1,500	$ -	
Trash & Recycling Recepticles	3	EA	$ 1,000	$ 3,000	
Ornamental Street Light	3	EA	$ 9,000	$ 27,000	Includes conduit, foundation, pole, and fixture. Electric panel cost estimated as one street light.
Latchstring Park Upgrade	TBD	Allowance			
Public Art	TBD	Allowance			
Wayfinding Signage	TBD	Allowance			
Traffic Signal Improvements		LS	$ 50,000	$ -	Includes conduit only.
Rain Gardens		SF	$ 150	$ -	
Raised Crosswalk		EA		$ -	Granite paver pedestrian travelway, bituminous approaches
RRFB		EA	$ 8,000	$ -	
Concrete Pavers	0	SY	$ 200	$ -	For Portland St intersection
Pedestrian Bollards	0	EA	$ 500	$ -	For Portland St intersection
Accessible Business Entrances		Allowance	$ 8,000	$ -	Rosemont at Portland St. Others?
ccessibility Upgrades at Rail Crossing		Allowance	$ -	$ -	
Catch Basin (new or relocated)	2	EA	$ 3,600	$ 7,200	
12" Stormdrain	20	LF	$ 150	$ 3,000	
Mobilization & Traffic Control (20%)		LS		$ 51,448	
Contingency (20%)		LS		$ 61,737	
Final Design (10%)		LS		$ 37,042	
		Subtotal:		**$ 407,465**	

Charleston Aluminum Pole
Lisbon Crossarm
Memphis® LED Pedestrian Series

POLE ATTRIBUTES:

Description The lighting post shall be all aluminum, one-piece construction, with a classic tapered and fluted base design.

Materials The base and fluted tapered cast shaft shall be heavy wall, cast aluminum produced from certified ASTM 356.1 Ingot per ASTM B-179-95a or ASTM B26-95. The straight shaft shall be extruded from aluminum, ASTM 6061 alloy, heat treated to a T6 temper. The tapered shaft shall be extruded from aluminum ASTM 6063 alloy, spun to a tapered shape, then heat treated to a T6 temper. All hardware shall be tamper resistant stainless steel.

Construction The shaft shall be double welded to the base casting and shipped as one piece for maximum structural integrity. The shaft shall be welded inside the base casting at the top of the access door, and externally where the shaft exits the base. All welding shall be per ANSI/AWS.

Dimensions The post shall be X'-XX" in height with a 12" or 16" diameter base. At the top of the post, an integral tenon with a transitional donut shall be provided for luminaire mounting.

Installation The post has an option to have four L-Type hot dip galvanized anchor bolts shipped with it. A door shall be provided in the base for anchorage and wiring access. A grounding screw shall be provided inside the base opposite the door.

CROSSARM ATTRIBUTES:

Lisbon crossams are made from durable cast aluminum that will provide grace and elegance to the GlasWerks™ II luminaires or any pendent mounting luminaire.**Requires P11 Tenon**
Requires P11 Tenon

FIXTURE ATTRIBUTES:

The Memphis® Pedestrian luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of this century. Designed for light control and ease of installation and maintenance, the Memphis pedestrian has a precision optical system for true street lighting performance.

Features for the Pedestrian Tear Drop Series:

- Classic, elegant appearance
- Pedestrian-scale
- Complements original Tear Drop Series
- Permanent, durable prismatic glass
- Ease of maintenance/installation

Finish/Material The luminaire is finished with polyester powder paint to insure maximum durability. All castings utilize alloy #356 copper free aluminum for maximum corrosion resistance and all exposed hardware is stainless steel**Configure Entire Pole Package Assmembly For Pole and Arm Combinations**

Catalog Number **MSPL2 P20 30K AS S B 6 DS R PCS LS29/1CA BKH GWLF200 SCA BK CHA 14 S5J 16 P11 ABG BK R162A FGIUS_S BK**	
Type:	Notes:

Charleston Aluminum Pole
Lisbon Crossarm
Memphis® LED Pedestrian Series

SPECIFICATIONS

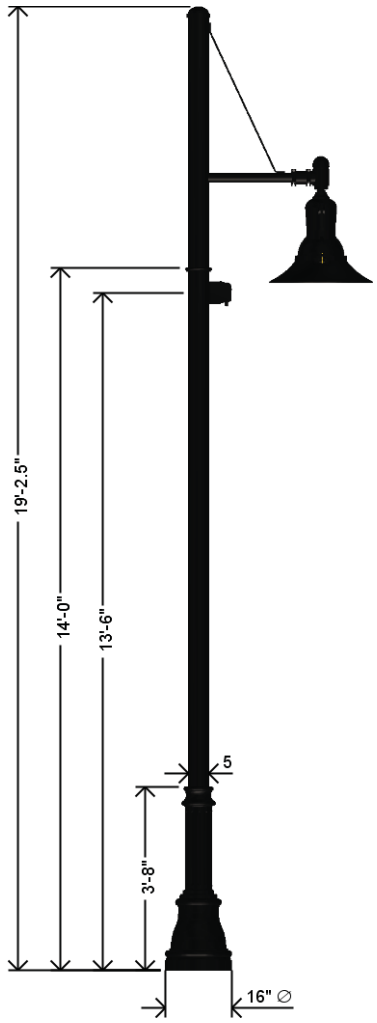
FIXTURE
Memphis LED Pedestrian
- •[MSPL2 P20 30K AS S B 6 DS R PCS]
  - Prefix: MSPL2
  - LED Package: LED Performance Package 20
  - Color Temperature: 3000 Series CCT
  - Voltage: Auto-Sensing (120-277V) 50/60 HZ
  - Mounting: Quick Lock Stem Mount
  - Finish: Black
  - Door: Shallow Symmetric
  - Skirts: Deep Skirt For Cutoff Requirement (25" Dia)
  - Part Night Dimming: None
  - Prewired Leads: None
  - Photocontrol Receptacle: NEMA Twist-Lock Photocontrol Receptacle
  - NEMA Label: None
  - Photocontrols: DTL Twistoff Photocontrol For Solid-State Lighting (120-277V)
  - ROAM Dimming: None
  - Surge Protector: None
  - Leveling Fitter: Existing QSM Fitter (No Fitter Supplied)
  - Pipe: None
  - Fitter Finish: None
  - Fitter Photocontrol Receptacle: None
  - Luminaire EPA: 1.36
  - Luminaire Weight: 39

ARM / MOUNTING BRACKET
Seville Crossarm (Use pendent mounting for luminaire only); Oriented at 180 degrees.
- •[LS29/1CA BKH GWLF200 SCA BK]
  - Prefix: Lisbon 29" Single
  - Arm Finish: Black
  - Leveling Fitter: GlasWerks
  - Mounting: Swivel
  - Fitter Finish: Black
  - Photocontrol: None
  - Cover for Photocontrol: None
  - Arm EPA: 2.8
  - Arm Weight: 40

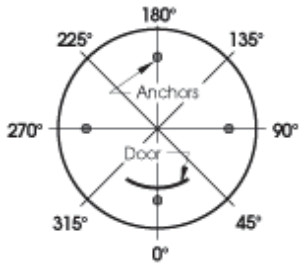
POLE
Charleston Aluminum Pole
- •[CHA 14 S5J 16 P11 ABG BK R162A]
  - Prefix: Charleston, Aluminum Pole
  - Height: 14 feet (Actual Height: 14'-0")
  - Shaft Style: S5J 5 inch diameter Smooth, .25 wall
  - Base: 16 inch Round Base
  - Tenon: 4.38 X 12 Tenon
  - Pole Mounting: Anchor bolts, galvanized steel
  - Finish: Powder Coat Paint Finish, Black
  - Breakaway Kit: None
  - Breakaway Kit Finish: None
  - Base EPA: 4.26066666667
  - Base Weight: 50
  - Anchor Bolt: AB-31-4

ACCESSORY
Weatherproof Receptacle; Height Mounted at 13'-6"
- •[FGIUS_S BK]
  - Receptacle Type: Small, In-Use Wet Location Cover
  - Finish: Black

Your Assembly Wind Load status: Pass
Passed for wind speed: 90 MPH
For further details, review the Structural Analysis Report.



Anchorage/Orientation Plan



Hand Hole is at 0 deg.

Customer Approval:
Alexander Jaegerman 07/02/2019
signature date

Job Name: Town of Yarmouth
Client Name:

Created By: Jim Bailey Date: 26-Jun-19